

a substrate; and

a magnetic layer, comprising a CoCr-based alloy and non-magnetic elements other than Cr, and having a multi-layer structure and disposed above said substrate,

said multi-layer structure having a first magnetic layer disposed above said substrate and at least one second magnetic layer disposed on said first magnetic layer on an opposite side from said substrate,

said first magnetic layer having a Cr-content larger than that of said second magnetic layer,

said first magnetic layer having a larger sum total content of nonmagnetic elements which are other than Cr and which non-magnetic elements have a larger atomic radius than Co compared to said second magnetic layer.

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2. (Amended) The magnetic recording medium as claimed in claim 1,

Cap wherein said first and second magnetic layers include at least one nonmagnetic element selected from a group consisting of Pt, Ta, W and B.

3. (Amended) The magnetic recording medium as claimed in claim 1,

Sub 1 B 1 wherein said first and second magnetic layers include approximately 8 to 15 at% of Pt, and approximately 1 to 6 at% of B.

4. (Amended) The magnetic recording medium as claimed in claim 1,
further comprising:

a first underlayer comprising a Cr-based alloy and disposed on said
substrate; and

a second underlayer comprising a Cr-based alloy and disposed between
said first underlayer and said first magnetic layer,

said second underlayer having a larger sum total content of elements
other than Cr than said first underlayer.

5. (Amended) The magnetic recording medium as claimed in claim 4,
wherein said second underlayer includes at least one element selected from a group
consisting of Mo, Ti, W, V and Ta.

7. (Amended) The magnetic recording medium as claimed in claim 1
comprising a plurality of second magnetic layers, wherein:

said first magnetic layer has a Cr-content larger than that of a lowermost
one of said second magnetic layers disposed closest to said first magnetic layer,

said first magnetic layer has a larger sum total content of nonmagnetic
elements which are other than Cr and which non-magnetic elements have a larger atomic
radius than Co compared to the lowermost one of said second magnetic layers; and

between two mutually adjacent second magnetic layers, the Cr-content and the sum total content of the nonmagnetic elements are respectively larger for a second magnetic layer disposed closer to said first magnetic layer.

8. (Amended) A method of producing a magnetic recording medium which includes a magnetic layer comprising a CoCr-based alloy and non-magnetic elements other than Cr and having a multi-layer structure, comprising the steps of:

- (a) forming a first magnetic layer on a base layer; and
- (b) forming at least one second magnetic layer on the first magnetic

layer,

said steps (a) and (b) being carried out so that a Cr-content of the first magnetic layer is larger than that of the second magnetic layer, and a sum total content of nonmagnetic elements which are other than Cr and which non-magnetic elements have a larger atomic radius than Co in the first magnetic layer is larger compared to that of the second magnetic layer.

10. (Amended) The method of producing the magnetic recording medium as claimed in claim 8, wherein said steps (a) and (b) form the first and second magnetic layers to include approximately 8 to 15 at% of Pt, and approximately 1 to 6 at% of B.

12. (Amended) The method of producing the magnetic recording medium as claimed in claim 11, wherein said step (d) forms the second underlayer to include at least one element selected from a group consisting of Mo, Ti, W, V and Ta.

14. (Amended) The method of producing the magnetic recording medium as claimed in claim 11, wherein said step (c) forms the first underlayer on the substrate at a substrate bias voltage of approximately 0 to -150 V, and said step (d) forms the second underlayer on the substrate via the first underlayer at a substrate bias voltage of approximately -100 to -300 V.

17. (New) The magnetic recording medium as claimed in claim 5, wherein a sum total of elements other than Cr is larger for the second underlayer than the first underlayer.

18. (New) The method of producing the magnetic recording medium as claimed in claim 12, wherein said steps (c) and (d) form the first and second underlayers so that a sum total of elements other than Cr is larger for the second underlayer than the first underlayer.